Jianjin Xu

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EDUCATION BACKGROUND

Tsinghua University Expected 06/2019

BS, Department of Computer Science

- Research interests: *Neural Network Interpretability, GAN*
- Personal website: atlantixjj.github.io
- Programming: C/C++, Python, Lua.
- Language: TOEFL 105, GRE Q 169 V 160 AW 3.5
- Awards and Honors: 2rd Prize for 2017 Mathematical Contest in Modeling 02/2017
  3rd Prize in 36th Challenge Cup Competition of Undergraduate Curricular Academic Science and Technology Works, Tsinghua University 04/2018

RESEARCH EXPERIENCE

Frame Difference-Based Temporal Loss for Video Stylization 06/2017 – 11/2018

Supervised by Prof. Xiaolin Hu

- Proposed a simple loss function to address the temporal stability problem in video stylization (transfer the style of video into an artwork).
- Applied the frame-difference based loss on pixel and feature level to replace existing optic-flow based loss.
- Won over existing methods by large scale user study (4800 votes) on both frame quality and video stability.
- Submitted to PAMI as the 1st author.

Unrestricted Vehicle Re-Identification System with Deep Metric Learning 06/2018 – 09/2018

Internship at MSRA, Supervised by Lead Researcher Xun Guo

- Developed independently a re-identification system that inputs raw videos of traffic monitors and identified the same vehicle appeared. The system first detects vehicle by faster RCNN in Caffe2/Detectron, then conducts in-camera tracking and cross camera matching by learned deep metrics.
- Trained the deep metric model on VeRi dataset, cross validated on VID dataset and applied to real world scene.
- The problem that different vehicles were confused in similar viewpoint was identified and addressed by modified sampling ratio in triplet loss.

Neural Painter: A smart image manipulator based on simple line-drawings 10/2017 – 04/2018

College Student Research and Career Creation Program of Beijing City, Supervised by Prof. Xiaolin Hu

- Aimed at modifying image through easy user directions, in the form of simple line-drawings.
- Built a system covering dataset preparation, GAN core technology implementation, frontend and backend development as team leader and 1st contributor.
- Won 3rd prize in 36th Tsinghua Challenge Cup and awarded outstanding project in Peking Student Innovation and Entrepreneurship Training Program.

Condition Object Proposal on Classification by Layer-wise Relevance Propagation 10/2016 – 06/2017

National Training Programs of Innovation and Entrepreneurship for Undergraduate, Supervised by Prof. Xiaolin Hu

- Studied independently the math of LRP, revealed its correlation gradient based visualization, which can be used to accelerate the computation of LRP.
- Attempted to condition object proposal branch of SharpMask (Pinheiro et al. 2016) on the result of classification branch, by integrating LRP information of the latter to the former.

SELECTED PROJECT

Interactive Edit in Aesthetic Painting Generation System 07/2018

Supervised by Prof. Jia Jia

- Added an interactive image edit module to original painting generation system (AI painting: An Aesthetic Painting Generation System, ACMMM'18).
- GrabCut (Rother et al. 2004) was used for interactive segmentation, GAN completion network (Iizuka et al. 2017) was used for image inpainting, poisson image edit (Perez et al. 2003) was used for image fusion.

Speech Recognition in English Speech Rating System 06/2016 – 09/2016

Internship at Boxfish

- Successfully constructed a Bidirectional LSTM and Connectionist Temporal Classification loss function.
- Trained models with TIMIT and the company's record data.

A Large Scale Spiking Neural Network Simulator based on CUDA 05/2016 – 12/2016

In Brain Inspired Visual Computing Student Research Training Program, Supervised by Prof. Feng Chen

- Developed independently a parallel algorithm by CUDA able to speed up around 20 times than CPU.

EXTRACURRICULAR ACTIVITIES

- Chairman of Tsinghua Future Internet and Computation Club (Microsoft Student Club) 06/2018 – Present
- Volunteer of Computing in the 21st Century Conference and Asia Faculty Summit 2018 on MSRA's 20th Anniversary 11/2018
- Volunteer of Global Artificial Intelligence Technology Conference 04/2016